<div align="center">Remarks</div>

Claims 1 through 23 remain pending in the application.

The specification is amended according to 37 CFR 1.77(b).

The Office Action rejects claims 1, 2, 22 and 23 as obvious over Wang, et al., <u>Digital Video Signal Encoder And Encoding Method Having Adjustable Quantization</u> U.S Patent 6,118,187 in view of Li, et al., <u>A Novel Rate Control Scheme for Video Over the Internet</u>, under the assertion that <u>Wang</u> teaches a method for controlling the rate controlling rate of an encoder for encoding a video sequence comprising a plurality of Group of Pictures which in turn comprise at least an I-frame and an Inter-frame, and determining a desired frame rate based on available bandwidth and computational resources, and that <u>Li</u> teaches determining a target buffer level based on a desired frame rate, and determining a target bit rate based on the target buffer level and the available channel bandwidth, and using the target bit rate for controlling the rate for encoding a video sequence, and the further assertion that it would have been obvious to incorporate the teaching of <u>Li</u> into <u>Wang</u> for providing improved rate control.

The cited references do not disclose all limitations of the claims. <u>Wang</u> does not disclose the step of determining a desired frame based on available computational resources for the encoding process as recited in claim 1. Applicant respectfully disagrees with the Examiner's assertion that the Applicant has no clear definition of "computational resources." A person skilled in the art would not interpret the term "computational resources" to include a deficit of bandwith because the term is

already well defined in the art. Applicant attaches a print out
from the Wikipedia website that demonstrates that the
"computational resources" are defined as computational time, the
number of steps necessary to solve a problem and memory space,
the amount of storage needed while solving the problem.
Applicant's use of "computational resources" is consistent with
the common definition in the art. Specifically, on page 1, ll.
21-26, Applicant's description discloses "the computational
resources of the Central Processing Unit (CPU) may not always be
sufficient for the encoding process. This due to the fact that
the higher computational resources of the CPU may be taken up by
other processes having a higher priority." Thus, a person
skilled in the art would understand the "computational
resources" as used in the present application to be consistent
with the common definition in the art. Specifically, as
processing resources of a CPU such as the number of operations
that can be performed in view of the current load of the CPU. A
bandwith deficit of a channel is not a computational resource
which can be seen from the fact that a channel does not perform
a computation but is itself used for transmission data. The
fact that the bandwith deficit is computed does not make the
bandwith deficit itself a computational resource, it is still a
resource of a transmission channel. Thus, Wang does not teach
the determination of a desired frame rate based on available
computational resources for the encoding process as recited in
claim 1. Therefore, because at least one claimed limitation is
missing, Wang does not render the applicant's claim obvious.

     In addition, Li also fails to disclose the step of
determining a desired frame based on available computational
resources for the encoding process as recited in claim 1. Li

provides a rate control scheme for video over the Internet by adopting a fluid-flow traffic model and a new quadratic rate-distortion model, and the scheme is better than other existing schemes in that the Li scheme can adapt itself in time to the variation of channel bandwith. Li is completely silent as to the feature of determining a desired frame rate based on available computational resources for the encoding process. Thus, the claimed invention cannot be achieved by combining Wang and Li because at least one distinct element of claims 1, 2, 22 and 23 are not found in either reference, and a prima facie case of obviousness had not been made out.

Further, the proposed combination does not result in the claimed invention because Li is missing elements ascribed to him. Contrary to the Examiner's assessment, Li does not teach the determination of a target buffer level based on the desired frame rate. Rather, Li discloses $B_o(i)$ is in the initial buffer level for the ith GOP, meaning that the available bits $R_o(i)$ for encoding all P frames and B frames can at most be considered to be determined based on the global encoding order ot GOPs (equation (4) of Li) but not the position of the Inter-frame (e.g. P frame of B frame) with respect to the I-frame within each GOP. Even if the global encoding order of the GOPs would be changed, the position of the Inter-frame with respect to the I-frame within each GOP may stay constant and vice versa. Thus, the global encoding order of the GOPs is independent from the position of the Interframe with respect to the I-frame within each GOP and the global encoding order of the GOPs referred to in Li cannot be read on the position of the Inter-frame with respect to the I-frame within each GOP as claimed by applicant. Therefore, the claimed invention cannot be achieved by combining

Wang and Li because at least one distinct element of claims 1, 2, 22 and 23 are not found in either reference, and a prima facie case of obviousness had not been made out.

Claim 2 is rejected as obvious over Wang and Li, in view of Nago, Method For Regulating Image Quality, Picture Communication Equipment Using Same And Recording Medium Having Recorded Therein A Program For Executing The Method, U.S. Patent 6,567,117 (May 20, 2003). As discussed above, Wang and Li do not disclose at least two elements of the claim and Nago does not provide the missing limitations. Therefore, because at least two claimed limitations are missing, no prima facia case of obviousness is established.

The Office Action rejects claim 22 under similar rejections as those applied to claim 1 above. For the reasons argued above, the claimed invention cannot be achieved by combining Wang and Li because at least one distinct element of claims 1, 2, 22 and 23 are not found in either reference, and a prima facie case of obviousness had not been made out.

The Office Action rejects claim 23 as obvious in view of Wang in view of Li and further in view of Rajagopalan, et. al, Single Pass Target Allocation for Video Encoding, U.S. Patent 6,181,742 (Jan. 30, 2001). As argued above, the combination of Wang and Li does not render the claimed invention obvious and Rajagopalan does not provide the missing limitation.

Conclusion

This response has addressed all of the Examiner's grounds for rejection. The rejections based on prior art have been

traversed. Reconsideration of the rejections and allowance of the claims is requested.

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